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Show that the roots of the quadratic

$$ax^2 + 2bx + c = 0$$

are imaginary if  $a, b, c$  are in harmonic progression and have the same sign.

Since  $a, b, c$  are in harmonic progression,

$$b = \frac{2ac}{a+c}.$$

The discriminant of the given quadratic then becomes

$$b^2 - ac = \left(\frac{2ac}{a+c}\right)^2 - ac = -ac\left(\frac{a-c}{a+c}\right)^2,$$

Additional solutions of 387 were received from R. M. MATHEWS, HORACE OLSON, and G. Y. SOSNOW, after the December issue had gone to press.

*Note.* We have solutions of all problems proposed during 1913 in this section up to the September number, except 385, which was published in February.

GEOMETRY.

Given a circle and a tangent to it. To find a point on its circumference such that the sum of its distances to the tangent and its point of contact shall be equal to a given length.

SOLUTION BY S. W. REAVES, University of Oklahoma.

Let  $ORN$  be the given circle,  $OT$  the given tangent, and  $O$  the point of contact. Denote the given length by  $l$ .

